

IN THE CLAIMS

Please amend the claims as follows:

1-73. (Canceled)

74. (Currently Amended) A membrane element comprising:
a first thin film composite membrane sheet;
a second thin film composite membrane sheet; and
a feed carrier that is used as a permeate carrier, the permeate carrier separating the first thin film composite membrane sheet and the second thin film composite membrane sheet, the permeate carrier having an H-value of about 0.045 atm-sec/gm or less, wherein the membrane element is capable of at least 50% MgSO₄ rejection of 500 ppm MgSO₄ in DI water at 65 psi applied pressure at 10 cm/s average feed channel cross-flow velocity at 77 degrees F.

75. (Previously Presented) The membrane element of claim 74, wherein the H-value is about 0.035 atm-sec/gm or less.

76. (Previously Presented) The membrane element of claim 74, wherein the thickness of the permeate carrier is approximately 0.025 inches or less.

77. (Previously Presented) The membrane element of claim 74, wherein the thickness of the permeate carrier is approximately 0.020 inches or less

78. (Previously Presented) The membrane element of claim 74, wherein the thickness of the permeate carrier is approximately 0.015 inches or less

79. (Previously Presented) The membrane element of claim 74, wherein the A value of each of the first membrane sheet and the second membrane sheet is less than about 15.

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80. (Previously Presented) The membrane element of claim 74, wherein the A value of each of the first membrane sheet and the second membrane sheet is between about 15 – 30.
81. (Previously Presented) The membrane element of claim 74, wherein the A value of each of the first membrane sheet and the second membrane sheet is between about 30 – 50.
82. (Previously Presented) The membrane element of claim 74, wherein the A value of each of the first membrane sheet and the second membrane sheet is greater than about 50.
83. (Previously Presented) The membrane element of claim 74, wherein the first thin film composite membrane sheet and the second thin film composite membrane sheet define a leaf.
84. (Currently Amended) The membrane element of claim 83, wherein the leaf has a length of approximately 3 feet or less ~~(Steve this number should take us outside of existing RO membranes with these H values for the perm carrier.~~
85. (Previously Presented) The membrane element of claim 83, wherein the leaf has a length of approximately 3 feet to 5 feet.
86. (Previously Presented) The membrane element of claim 83, wherein the leaf has a length of approximately 5 feet or greater.
87. (Previously Presented) The membrane element of claim 74, wherein the membrane element is capable of at least 90% MgSO_4 rejection of 500 ppm MgSO_4 in DI water at 65 psi applied pressure at 10 cm/s average feed channel cross-flow velocity at 77 degrees F.
88. (Previously Presented) The membrane element of claim 74, wherein the membrane element has a spiral wound configuration with an outer diameter of approximately 3.25 inches or less.

89. (New) A membrane element comprising:
- a first thin film composite membrane sheet;
 - a second thin film composite membrane sheet; and
 - a permeate carrier separating the first thin film composite membrane sheet and the second thin film composite membrane sheet, the permeate carrier having an H-value of about 0.045 atm-sec/gm or less, the permeate carrier having a void volume greater than 50 percent, wherein the membrane element is capable of at least 50% MgSO_4 rejection of 500 ppm MgSO_4 in DI water at 65 psi applied pressure at 10 cm/s average feed channel cross-flow velocity at 77 degrees F.
90. (New) The membrane element of claim 89, wherein the permeate carrier having a void volume greater than 60 percent.
91. (New) The membrane element of claim 89, wherein the permeate carrier having a void volume greater than 70 percent.
92. (New) The membrane element of claim 89, wherein the permeate carrier having a void volume greater than 80 percent.